Complete Summary

GUIDELINE TITLE

Determining the volume of residual urine by ultrasonography.

BIBLIOGRAPHIC SOURCE(S)

Finnish Medical Society Duodecim. Determining the volume of residual urine by ultrasonography. In: EBM Guidelines. Evidence-Based Medicine [CD-ROM]. Helsinki, Finland: Duodecim Medical Publications Ltd.; 2004 Oct 3 [Various].

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Finnish Medical Society Duodecim. Determining the volume of residual urine by ultrasonography. In: EBM Guidelines. Evidence-Based Medicine [CD-ROM]. Helsinki, Finland: Duodecim Medical Publications Ltd.; 2000 May 9 [Various].

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Urinary incontinence
- Urinary symptoms
- Urinary tract infection
- A palpable mass in the lower abdomen
- Increased serum creatinine

GUIDELINE CATEGORY

Diagnosis
Evaluation

CLINICAL SPECIALTY

Family Practice
Internal Medicine

INTENDED USERS

Health Care Providers
Physicians

GUIDELINE OBJECTIVE(S)

Evidence-Based Medicine Guidelines collect, summarize, and update the core clinical knowledge essential in general practice. The guidelines also describe the scientific evidence underlying the given treatment recommendations.

TARGET POPULATION

- Individuals with urinary incontinence
- Elderly men with urinary symptoms
- Men with urinary tract infections
- Individuals with a palpable mass in the lower abdomen
- Individuals with increased serum creatinine

INTERVENTIONS AND PRACTICES CONSIDERED

Determination of the volume of residual urine by ultrasonography of the urinary bladder

MAJOR OUTCOMES CONSIDERED

Inter-observer reliability and validity of ultrasonic estimation of bladder volume

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The evidence reviewed was collected from the Cochrane database of systematic reviews and the database of abstracts of reviews of effectiveness (DARE). In addition, the Cochrane Library and medical journals were searched specifically for original publications.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

A. Strong research-based evidence. Multiple relevant, high-quality scientific studies with homogenic results.
B. Moderate research-based evidence. At least one relevant, high-quality study or multiple adequate studies.
C. Limited research-based evidence. At least one adequate scientific study.
D. No research-based evidence. Expert panel evaluation of other information.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not applicable

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The levels of evidence [A-D] supporting the recommendations are defined at the end of the "Major Recommendations" field.

Principles

- Any doctor can determine the volume of residual urine after brief education.

Indications

- Urinary incontinence (to rule out overflow)
- Urinary symptoms in elderly men
- Urinary tract infection in the male
- A palpable mass in the lower abdomen
- Increased serum creatinine (to rule out obstruction)

Techniques

- The patient voids.
- Keep the ultrasonography probe in a transverse position and find a view which shows the bladder at maximum size. Freeze the view and measure the horizontal (a) and vertical (b) dimensions of the bladder.
- Move the probe to a longitudinal position, find the maximum longitudinal dimension (c) of the bladder and measure it.
- The (minimum estimate of) residual urine volume = 0.6 x a x b x c (Nwosu et al., 1998; DARE-981930, 2000) [B]. If the dimensions are given in cm, the result is in mL.
- A volume exceeding 100 mL is abnormal, and a volume exceeding 200 mL is usually an indication of treatment.
- The volume of the prostate can be measured by using the same formula.

Examining the Full Bladder

- If you intend to determine the position and depth of the bladder before bladder puncture or percutaneous cystostomy, do not ask the patient to void, but perform ultrasonography with a full bladder.

Definitions:

Levels of Evidence

Levels of Evidence

A. Strong research-based evidence. Multiple relevant, high-quality scientific studies with homogenic results.
B. Moderate research-based evidence. At least one relevant, high-quality study or multiple adequate studies.

C. Limited research-based evidence. At least one adequate scientific study.
D. No research-based evidence. Expert panel evaluation of other information.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Concise summaries of scientific evidence attached to the individual guidelines are the unique feature of the Evidence-Based Medicine Guidelines. The evidence summaries allow the clinician to judge how well-founded the treatment recommendations are. The type of supporting evidence is identified and graded for select recommendations (see the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate determination of the volume of residual urine by ultrasonography

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- Estimation of bladder volume by ultrasonography is both reliable and valid for clinical purposes, but the most appropriate formula for calculation cannot be determined on the basis of systematic review.
- The poor quality of the study designs and the potential elements of bias make it impossible to recommend the most valid formula for estimating bladder volume. The variation in bladder shape at different volumes would suggest that a single formula may be inappropriate at different bladder volumes.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Finnish Medical Society Duodecim. Determining the volume of residual urine by ultrasonography. In: EBM Guidelines. Evidence-Based Medicine [CD-ROM]. Helsinki, Finland: Duodecim Medical Publications Ltd.; 2004 Oct 3 [Various].

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 May 9 (revised 2004 Oct 3)

GUIDELINE DEVELOPER(S)

Finnish Medical Society Duodecim - Professional Association

SOURCE(S) OF FUNDING

Finnish Medical Society Duodecim

GUIDELINE COMMITTEE

Editorial Team of EBM Guidelines

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

The group consisted of primary care physicians and specialists.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Finnish Medical Society Duodecim. Determining the volume of residual urine by ultrasonography. In: EBM Guidelines. Evidence-Based Medicine [CD-ROM]. Helsinki, Finland: Duodecim Medical Publications Ltd.; 2000 May 9 [Various].

GUIDELINE AVAILABILITY

This guideline is included in a CD-ROM titled "EBM Guidelines. Evidence-Based Medicine" available from Duodecim Medical Publications, Ltd, PO Box 713, 00101 Helsinki, Finland; e-mail: info@ebm-guidelines.com; Web site: www.ebm-guidelines.com.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on August 28, 2001. The information was verified by the guideline developer as of October 26, 2001. This summary was updated by ECRI on February 21, 2005.

COPYRIGHT STATEMENT

Date Modified: 5/2/2005